

Business Ecosystems – A Primer

- Business ecosystems are a constructed or hosted entity to harness innovation across a large number of diverse organizations globally to create business value
- They have been around for decades in industries such as aerospace/defence, software engineering, hardware engineering, microelectronics, manufacturing and now pharma
- Successful business ecosystems focus on technology platforms and co-create technological building blocks for those platforms (i.e. The members contribute to the creation of the technology).
 - These platforms typically represent a really complex business or technological challenge
 - Eg how do you drive energy efficiency in grinding circuits from 5% to 50% in 10 years?
 - How do you replace ball mills?
 - Platforms are created based on a need of the industry
 - Companies involved in co-creating these platforms add assets (eg intellectual property, time, money, resources, technology) to the platforms and create their own product offerings
 - Eg Android is a platform, Samsung and Nokia collaborate on the platform but compete on their products
 - In pharma a number of companies are collaborating on a platform consisting of a synthetic route to a protein. They share development costs and then create their own drugs based on the platform
 - In mining a platform could be a ball mill/SAG mill etc. where Metso and Autotec could add advanced control systems or tweak the design
 - CMIC is focussed on is tackling the platforms in mining
- They are comprised typically of groups of members working in a defined technology space (e.g. Exploration, continuous underground mining, energy in comminution) that target a specific need that is not possible for a single company to tackle
- A key aspect is that everyone puts “skin in the game” and provides value to the ecosystem and contribute to building the platform(s). This is money, resources, technology etc.
- Business ecosystems are never hosted by government although government plays vital role in the aerospace business ecosystems simply due to how the

procurement process in this industry drives technology development.

- Business ecosystems are hosted by a company (e.g. Google, Apple, P&G) or by a third party organization (Eclipse Foundation/software, CMIC/Mining, P&G/manufacturing, RPDE & Niteworks / defence)
 - The host or keystone of an open ecosystem is typically very small but has a massive impact (e.g. Eclipse is 7 people, \$4M/yr revenue but creates billions of dollars in value annually or its members). Eclipse is located in Ottawa.
 - The keystone advances the platform(s), decreases cost, increases trust, creates the technology groups, recruits members and decreases barriers to technology adoption and market entry of new technology & products
- Members cover the entire supply chain from academia to startups to SME's to adopters (e.g. Mining companies) and also represent multiple industries
- Business ecosystems can be open or closed; Google operates both, Apple and Microsoft are closed and led by a specific vendor
 - The Technology Innovation Consortium created by AGA is essentially a company led, closed ecosystem

CMIC is building the first open innovation business ecosystem for the mining industry.